

CHAPTER 3. REQUIREMENTS FOR IMPROVEMENTS, RESERVATIONS, AND DESIGN

3-1 General Requirements

1. *General Requirements.* Unless otherwise specified in these regulations, all subdivisions shall comply with the requirements of Chapter 3.
2. *Conformance to Applicable Rules and Regulations.* In addition to the requirements established herein, divisions of land shall comply with all applicable laws, ordinances, resolutions, rules, policies or regulations, including, but not limited to the following:
 - a. All applicable provisions of Tennessee law, regulations, or policy.
 - b. The Zoning Code, Building and Housing Codes, and all other applicable Metro laws.
 - c. The adopted General Plan, including its constituent elements, and the Major Street Plan.
 - d. The rules of the Metropolitan Health Department and the Tennessee Department of Health and Environment.
 - e. The rules of the Tennessee Department of Transportation if the subdivision or any lot contained therein abuts or encompasses a state highway or proposed state route.
 - f. The standards and regulations adopted by all other boards, commissions, and agencies of the county, where applicable.
3. *Subdivision and Street Names.* The proposed name of the subdivision or streets within the subdivision shall not duplicate or too closely approximate phonetically, the name of any other subdivision or street in Metro. Proposed streets connecting, or which may eventually connect, to an existing street shall continue the existing street name, including streets that connect at an arterial or collector street.

3-2 Monument Requirements

1. *Monument Requirements.* Permanent monuments, of non-degradable material, shall be placed in all subdivisions when new streets are to be constructed.
 - a. All monuments shall be placed on property corners or referenced to property lines or road alignments.
 - b. Certification (see Appendix A) for placement of monuments, by a registered surveyor, shall be required.
 - c. Monuments shall not be required where a subdivision occurs only along existing streets.
2. *Control Monuments.* One permanent control monument, both vertical and horizontal, shall be placed within each subdivision where roads are to be constructed. Control monuments shall be located within dedicated right-of-way near the entrance to the subdivision and, if possible, in a non-fill area or be affixed to a natural rock outcrop and shall comply with the following:
 - a. Horizontal coordinates and vertical elevations shall be shown on the final subdivision plat and shall be correlated to the Tennessee State Plane Coordinate System using North American Datum 1983 and North American Vertical Datum 1929.

- b. Reference notes (field ties) defining magnetic bearings and distances to the nearest established street line or official benchmark shall be accurately described on the final subdivision plat.
 - c. A description shall be included on the final subdivision plat using words and/or symbols to make it easy to locate at the site.
 - d. Azimuth information provided to either a second monument or a substitute such as an antenna, church spire or other natural object of which disturbance is unlikely shall be included on the final subdivision plat.
3. *Internal Monuments and Lot Pins.* One monument, for each four lots or fraction thereof in the subdivision, shall be placed within sight from one to another.
- a. The monuments shall be placed within dedicated rights-of-way, when possible, and shall be located in non-fill areas or affixed to natural rock outcrops.
 - b. In all subdivisions, lot corners and lot line breaks shall be staked with non-degradable pins.

3-3 Suitability of the Land

1. *Suitability of the Land.* Land which the Planning Commission finds to be unsuitable for subdivision or development due to flooding as shown on FEMA maps or identified in local studies confirmed by the Stormwater Division of Metro Water Services (Stormwater Division), steep slopes as shown on Metro's topographical maps, rock formations, problem soils, sinkholes, other adverse earth formations or topography, utility easements, or other features which may be harmful to the safety, health, and general welfare of inhabitants of the land and surrounding areas shall not be subdivided or developed unless adequate methods to solve the problems created by the unsuitable land conditions are formulated by the developer and approved by the Planning Commission. Land containing a designated Cedar Glade environment shall not be subdivided without demonstrated compliance with Section 17.28.060 of the Zoning Code. Additional technical evaluation, plans, and analysis of a proposed subdivision by a professional engineer specializing in geotechnical, soils, hydrology, and/or structures may be required.
2. *Critical Lots.* When a proposed lot contains natural or manmade features that affect the feasibility of construction, it shall be designated a critical lot during the concept plan or partition review process and subsequent subdivision submittals.
- a. A lot shall be designated critical when the lot is created on a natural slope of 20 percent or greater or when it contains natural floodplain.
 - b. A lot may be designated critical on the basis of any other lot feature(s) that affects the feasibility of construction as listed in Section 3-3.1.
 - c. Lots on steep slopes shall be subject to the hillside development standards of Section 17.28.030 of the Zoning Code.
 - d. Lots in floodplains shall be subject to the floodplain/floodway development standards of Section 17.28.040 of the Zoning Code.
 - e. Lots with problem soils shall be subject to the development requirements of Section 17.28.050 of the Zoning Code.
 - f. A star symbol shall be used to identify critical lots on the face of the concept plan, development plan, and final plat.
3. *New Critical Lots.* Any lot that will be created as a result of the grading process that meets the definition of a critical lot, shall also be identified as such on the final plat,

and shall be subject to the applicable development standards of Sections 17.28.030 and 17.28.040 of the Zoning Code.

4. *Prior to Concept Plan Approval.* Prior to approval of a Concept Plan for a subdivision that includes lots designated as critical, the applicant shall provide the Executive Director with a preliminary grading study and a description of the measures to be taken:
 - a. To protect the natural features of the critical lots.
 - b. To minimize changes in grade, cleared area, and volume of cut or fill, and to control adverse impacts on the critical lots during and following the period of site disturbance.
 - c. To align streets to minimize disturbance of slopes.
 - d. To identify easements along property lines to meet future drainage needs.
5. *Critical Lot Plan Required.* Prior to application for a building permit on a lot designated as critical, a plan shall be submitted to the Executive Director for approval as described in Appendix B. The Executive Director may direct a critical lot plan to the Planning Commission for decision.
6. *Grade Changing.* If grade changing is required in any subdivision, contour grading techniques shall be used, where practicable, to provide a natural-appearing transition between grades. The angle of any graded slope shall be gradually transitioned to the angle of the natural terrain. Slopes of 33 percent or less may contain turf but, wherever practicable, vegetation other than turf that increases the natural appearance shall be used. All vegetated embankments shall have a check swale at the top. No reinforced embankment shall exceed 66 percent.
7. *Grade Changing Devices.* Where development of the land requires grade-changing devices such as retaining walls, they shall be designated on the preliminary grading study and a description, including illustrations, of each device shall be included. For interlocking walls, vines and groundcover to provide a more natural finish to coarse walls is encouraged. Grade changing devices shall:
 - a. Avoid obstructing driveway connections between building lots for non-residential development.
 - b. Avoid creating precipitous grade changes, including through the use of retaining walls, that could result in safety hazard(s) to occupants of the development or to the general public.
 - c. Generally limit the height retaining walls in or abutting residential development. Excessive grade changes shall be managed with terraces formed by a series of low retaining walls or by a combination of contoured slopes and low retaining wall(s).

3-4 Lot Requirements

1. *Lot Arrangement.* The lot arrangement shall be such that there shall be no foreseeable difficulties, for reasons of topography, flood hazards, or other conditions in providing a building site and yard area. Lots proposed for creation on steep slopes, or with limited acceptable soil for private sewage disposal system (if applicable), shall be designated on the face of the plat as critical lots in accordance with the provisions of Section 3-3.2 - 3-3.5.

2. *Lot Dimensions.* Lot area shall comply with the minimum standards of the Zoning Code.
 - a. *Lot Lines.* Residential side lot lines shall be at right angles to street lines (or radial to curving street lines) unless a variation from this rule will give a better street or lot plan.
 - b. *Frontage.* Each lot shall have frontage on a public street or, where permitted, on a private street to enable vehicular access to be provided. Lots in commercial zones may be excepted where a joint access driveway provides better access management.
 - c. *Flag Lots.* Residential flag lots shall not be permitted except the Planning Commission may waive the requirement if it finds that, due to unusual conditions, limited area for lot frontage on a street is available, or if all of the following conditions are met:
 1. The proposed lots fit into the character of the area and are consistent with the general plan.
 2. All minimum standards of the Zoning Code shall be met.
 3. Up to three lots are proposed.
 4. The residential unit on the lot with frontage comparable to other lots in the area shall face the street.
 5. The flag lot private drive and/or access easement shall connect to a street.
 6. The flag lot private drive and/or access easement shall be at least ten feet wide for its entire length.
 7. The flag lot shared access easement shall be part of one non-frontage lot and under the same ownership as that lot.
 - d. *Corner Lots.* Dimensions of corner lots shall be large enough to allow for street intersection radii and for erection of buildings, as stipulated by the requirements of the Zoning Code.
 - e. *Additional Yard Area.* Residential lots, including double frontage and corner lots, shall be platted so that the depth of any yard abutting an arterial or collector street, limited access highway or railroad can conform to any additional yard requirements established by the zone district requirements.
 1. In residential areas, a buffer strip at least 25 feet in depth adjacent to a railroad right-of-way or limited access highway may be required for partitions and minor subdivisions and shall be required for major subdivisions. This strip shall be designated as common open space and shall meet the requirements of Section 17.24.240 of the Zoning Code.
 2. In commercial or industrial areas, the nearest street extending parallel or approximately parallel to a railroad right-of-way shall, wherever practicable, be at a sufficient distance therefrom to ensure suitable depth for commercial or industrial sites.
 - f. *Lot Width.* Lot width, at the front property line stipulated in the Zoning Code, shall be not less than 25 percent of the average lot depth. This provision shall not apply to residential lots greater than two acres in size (see Section 2-8.1), or to property within commercial or industrial zones.
3. *Double Frontage Lots.* Creation of lots with double frontage (street abutment front and rear) shall be avoided.
 - a. *Exceptions.* Exceptions may be made where necessary to provide access to residential development from other than arterial or collector streets, or to overcome specific disadvantages of topography and orientation.

- b. *Preferred Approach to Residential Subdivisions Fronting on an Arterial or Collector.* When property is subdivided along an arterial or collector street, dwelling units are encouraged to face the arterial or collector wherever practicable with vehicular access via a shared frontage road, driveway easement, or rear alley to minimize curb cuts on the arterial or collector. There shall be a separation area between the arterial or collector and the edge of the frontage road or shared driveway easement.
- 4. *Access from Arterial or Collector Streets.* When property is divided along an existing street, the Planning Commission may require that lots not derive access from arterial or collector streets. Where driveway access from arterial or collector streets is necessary, the Planning Commission may require that lots be served by combined driveways (usually one driveway entrance shared by two lots), or by a private access drive serving more than two lots (if necessary shared maintenance arrangements shall be incorporated into the subdivision deeds) in order to limit driveway entrances and potential traffic hazards.
- 5. *Lot Drainage.* Lots shall be arranged in a manner to permit coordination of lot drainage with the general storm drainage system for the area, including subsurface drainage.
 - a. Drainage systems shall be designed to avoid concentration of flow from each lot onto adjacent lots.
 - b. The applicant shall insure that all artesian ground waters of a permanent or temporary nature discovered during the subdivision planning, development and construction process shall be intercepted and carried away to primary drainage conduits by swale ditches or in underground pipes on property line easements. Regardless of the location of property lines, intercept shall be allowed at the point of artesian surfacing. The applicant shall be obligated to perform this work upon evidence of any artesian water discovered during the planning, development, and construction phase of the subdivision.
 - c. Any sinkhole or any natural channel serving as a means of moving ground water into the subterranean system shall be identified on the final plat and shall be protected as approved by the Stormwater Division and the Tennessee Department of Environment and Conservation. All sinkholes in residential subdivisions shall be platted as open space.
- 6. *Relationship to Watercourses.* Except as noted in Section 3-10.6, Conservation Easements for Greenways, if a tract being subdivided contains a water body, or portion thereof, lot lines shall be so drawn as to distribute the entire ownership of the water body among the fees of adjacent lots.
 - a. The Planning Commission may approve an alternative plan whereby the ownership of and responsibility for safe maintenance of the water body is so placed that it shall not become a public responsibility.
 - b. No more than ten percent of the minimum area of a lot required under the Zoning Code may be satisfied by land that is under water.
 - c. Where a watercourse separates a buildable area of a lot from the street by which it has access, provisions shall be made for installation of a culvert or other drainage device of a design approved by the Stormwater Division, and no building permit shall be issued for a structure on such lot until the installation is completed and approved by the Stormwater Division.

3-5 Lot Subdivision Comparability

1. *Lot Subdivision Comparability.* In areas previously subdivided and predominantly developed, lot sizes resulting from a proposed subdivision shall be generally in keeping with the lot frontage and lot area of surrounding lots, as defined in Sections 3-5.2 – 3-5.5.
 - a. This rule encourages consistent and compatible subdivision of land in existing neighborhoods.
 - b. This rule shall apply to properties zoned residential and which are intended to remain largely for residential use, as defined by the General Plan including its constituent elements.
 - c. This rule shall not apply in agricultural zones, to lots created on a new street, or to the consolidation of lots. Lot frontage comparability shall not apply to lots at the terminus of permanent dead end streets with 35 feet of street frontage or more.
2. *Exceptions.* Lot comparability may not be required if, in the opinion of the Planning Commission, a smaller lot size is consistent with the General Plan including its constituent elements. One or more of the criteria listed below may be used by the Commission to determine whether the proposed smaller lot size is consistent with the General Plan:
 - a. If the proposed subdivision is within a one-half mile radius of any area designated as a "Regional Activity Center" land use policy category.
 - b. If the proposed subdivision is within a one-quarter mile radius of any area designated as a "Mixed Use", "Office", "Commercial", or "Retail" land use policy categories.
 - c. If the proposed subdivision is within an area planned for a town center or neighborhood center.
 - d. Where the proposed lot sizes are consistent with the adopted land use policy that applies to the property.
3. *Comparable Lots.* The following properties shall be used to determine the block character for purposes of establishing lot comparability:
 - a. Lots on the same and opposing block face (as defined in Section 17.04.060 of the Zoning Code) that are within 300 feet of the boundary of the property proposed to be subdivided.
 - b. Lots abutting each quadrant of an intersection when the proposal involves a corner lot; and
 - c. Lots that abut or are directly across a public way, but not to the rear of the property, from the property proposed to be subdivided.
4. *Excluded Lots.* The following properties shall not be used to determine the block character for purposes of establishing lot comparability:
 - a. Properties zoned non-residential or multi-family.
 - b. Zoned for single-family and/or two-family residential, but used for multi-family residential (i.e. apartments, townhouses).
 - c. Properties zoned residential, but used for non-residential purposes (i.e. daycare, school, religious institution, or a non-conforming, non-residential use).
 - d. Properties where development continuity cannot be provided due to a natural or man-made barrier, including but not limited to, arterial or collector streets, public land, railroad right-of-way, waterways, or
 - e. Properties that face a block face within a non-residential zoning district.

5. *Lot Comparability Procedures.* To determine if a proposed subdivision meets the requirements of this Section, the average lot frontage and area of the surrounding comparable lots shall be calculated as follows:
 - a. The surrounding lot frontages and areas shall be stratified and any lot varying more than 50 percent from the median shall not be included in the calculations.
 - b. Determine the average frontage of the applicable surrounding lots and multiply the result by 90 percent. This result then is the minimum lot frontage required for comparability.
 - c. Determine the average area of the applicable surrounding lots and multiply the result by 75 percent. This result then is the minimum lot area required for comparability.

3-6 Blocks

1. *Block Widths.* Blocks shall have sufficient width to provide for two tiers of lots of appropriate depths. Exceptions to this prescribed block width shall be permitted in blocks adjacent to major streets, railroads, waterways, or for double frontage lots along collector or arterial streets.
2. *Block Lengths.* Block Lengths in residential areas shall not exceed 1,200 feet nor be less than 200 feet or four lot widths whichever is greater, except as the Planning Commission deems necessary to secure efficient use of land or desired features of the street pattern. Wherever practicable, blocks along arterial streets shall not be less than 1,000 feet in length and blocks along collector streets should not be less than 1,000 feet in length.
3. *Considerations for Block Length, Width, and Shape.* The lengths, widths, and shapes of blocks shall be determined with due regard to:
 - a. Zoning requirements as to lot sizes;
 - b. Needs for convenient access, circulation, control, and safety of vehicular and pedestrian traffic; and
 - c. Limitations and opportunities of topography.
4. *Easements Through Blocks.* The Planning Commission may require the dedication of an easement through blocks to accommodate utilities, drainage facilities, or pedestrian traffic.

3-7 Improvements

1. *Authorization to Construct Improvements.* The approval of the concept plan and the development plan by the Planning Commission and the approval by the applicable departments or agencies of construction plans shall be authorization to proceed with construction of improvements within a subdivision.
2. *Construction of Improvements.* Construction shall be completed to the approved construction plans, construction specifications, and construction inspection requirements of the applicable department and agencies. Inspections during the construction process shall meet the requirements of Section 3-11. If construction has not started within a phase within two years within approval of construction plans, construction plans shall be resubmitted to the applicable departments or agencies for re-approval.

3. *Completion of Improvements.* After all required inspections are completed, the final paving course may be applied when 75 percent of the structures are completed within a subdivision. Under no circumstances shall final paving occur until all utility installations, including service lines to lots are complete. However, when an undue hardship is created by disallowing the final paving of a street prior to construction of 75 percent, but not less than 50 percent, of the structures within a subdivision, the Public Works Department may permit final paving to occur and the Planning Commission may allow the subsequent reduction of the Performance Bond as described in Section 6-3-2. Once 90 percent of all structures within a subdivision are completed, no further building permits shall be issued until all infrastructure has been completed and accepted by the applicable departments and agencies.

3-8 Requirements for Sidewalks and Related Pedestrian Facilities

1. *Requirements for Sidewalks on New Subdivision Streets.* Sidewalks shall be located within the right-of-way on both sides of new public and private streets, including new extensions of existing streets. All sidewalks and pedestrian ways constructed upon public rights-of-way shall be in accordance with the adopted construction standards of Metro. Sidewalks shall not be required:
 - a. On new subdivision streets in industrial zoning districts.
 - b. On new streets in residential subdivisions where the base zoning district requires a minimum lot area of at least 20,000 square feet and the area of each lot to be platted remains 20,000 square feet or greater.
 - c. Where all interior lots of an *infill development*, as defined in Section 7-2, are accessed from permanently dead-ended street(s) of no more than 750 feet in length, sidewalks are not required along the dead-end street(s).
 - d. Where a development regulated by an Urban Design Overlay, or other district governed by urban design standards, sets out special design intentions that exclude sidewalk on a street at the neighborhood edge, if approved by the respective decision-making body, either the Metropolitan Council or the Planning Commission.
2. *Requirements for Sidewalks on Existing Streets Fronting the Property Subdivided.*
 - a. *Applicability.*
 1. The requirements and procedures of the Zoning Ordinance shall apply for construction of sidewalks along existing collector or arterial streets in association with non-residential or multi-family developments. The requirements and procedures of the Subdivision Regulations apply for all other development conditions.
 2. The requirements of Section 3-8.2.b for sidewalk construction shall not apply to any property outside of the Urban Services District where the Sidewalk Priority Index (SPI) score is less than 20, as determined by the planning department after consulting the appropriate agencies Metro. The Sidewalk Priority Index (SPI) is established in the Strategic Plan for Sidewalks and Bikeways, most recent edition adopted by the Planning Commission, and incorporated herein by reference.
 - b. *Construction of sidewalks where there is an existing sidewalk network is required under the conditions set out in Sections 3-8.2.b.1 to 3-8.2.b.4.* New sidewalks shall comply with the adopted standards of Metro consistent with existing sidewalk development along the block face. Where existing conditions do not meet an adopted standard, a design compatible with existing conditions may be

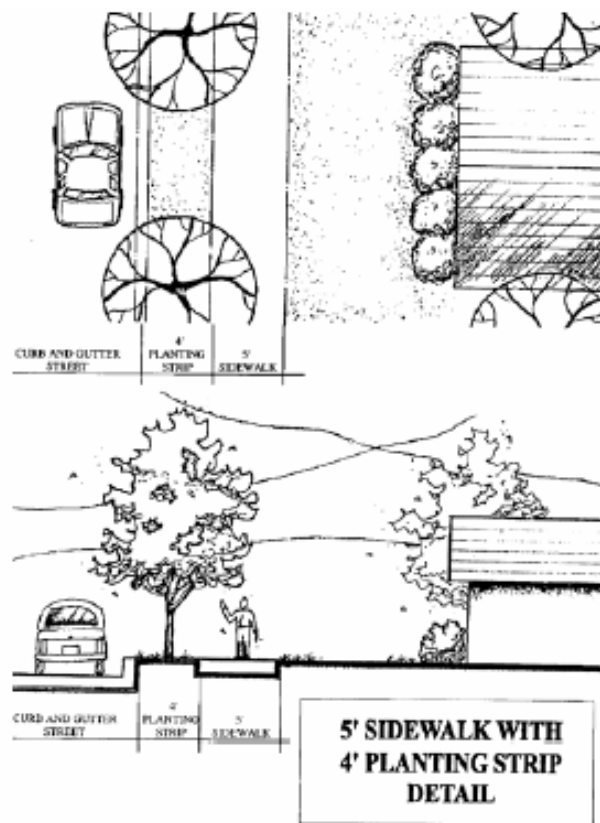
considered and approved by the Planning Commission, upon the advice of the appropriate Metro agencies.

1. *Existing sidewalk repair or replacement.* Sidewalks on street(s) fronting the property, that do not comply with a standard of Metro consistent with existing sidewalk development on the block face, shall be repaired or replaced as part of a new development.
 2. *New sidewalk to fill a gap in the existing network.* New sidewalk shall be constructed on street(s) fronting the property wherever installation would be contiguous to and connect existing sidewalk segments.
 3. *New sidewalk to extend the existing network.* New sidewalk shall be constructed on street(s) fronting the property wherever installation would be adjacent to and extend an existing sidewalk.
 4. *New Sidewalk on the same block face as existing sidewalk.* New sidewalk shall be constructed on street(s) fronting the property wherever public sidewalk already exists on the same block face.
- c. *Construction of sidewalks or financial contribution to the pedestrian network.* When the conditions of 1 and 2 of this Section do not apply, the developer remains responsible for sidewalk(s) along street(s) fronting the property being subdivided, but may either construct a sidewalk or make a financial contribution to Metro in lieu of constructing, in accordance with this Section. When built, new sidewalks shall comply with the standards of Metro; however, a design compatible with existing conditions may be considered and approved by the Planning Commission, upon the advice of the appropriate Metro agencies.
1. *Exception.* Only those lots platted that create a new or additional development right are subject to the sidewalk requirement of this Section.
 2. *Alternative Pedestrian Trail.* When an alternative pedestrian trail or greenway trail meeting Metro Greenways' design standards is proposed to be constructed by the developer, and the trail substantially serves the same purpose as a sidewalk along an existing street required by this Section, then the applicant may construct the trail as a substitute for that sidewalk section.
3. *Contribution to the Pedestrian Network as an Alternative to Sidewalk Installation.* Where permitted by Section 3-8.2.b., the developer may make a financial contribution to Metro in lieu of construction. The value of said contribution shall be the average linear foot sidewalk project cost, determined on an annual basis by the Public Works Department review of sidewalk projects contracted for or constructed by Metro. Any such payments received by Metro shall be assigned and designated for implementation of the Strategic Plan for Sidewalk Capital Improvements, as amended from time to time. The fee in lieu of sidewalk construction shall be used to accommodate pedestrian needs within the pedestrian benefit zone in which the development property is located. The applicant's payment shall be allocated within 24 months of receipt of the payment; otherwise, said payment shall be refunded to the subdivision applicant.
- a. *Fee Deadline.* Prior to the recording of a final plat for the applicable phase(s) of any subdivision, the applicant shall either pay all in-lieu fees with a cashier's check or post a performance agreement with an accompanying security document, as defined in Section 6-1.2 of these regulations. Partial payments of the in-lieu fee (i.e. combinations of cash and surety) shall not be accepted.
 - b. *Security Document.* Performance agreements shall be reviewed annually by the planning department in accordance with its established performance agreement procedures. However, in-lieu fee performance agreements are not eligible for

reduction. The security document shall be released once full payment of the in-lieu fee is made by cashier's check to the Public Works Department. Payment of the in-lieu fee shall be made:

1. Prior to the release of any bond covering roads and drainage or,
 2. For projects without a bond for roads and drainage, for the same development phase to which the in-lieu fee applies.
4. *Sidewalk Dimensions.* The minimum width of public sidewalks shall be five feet. Where concrete curbs are required or constructed, grass or landscaped areas or strips with a minimum width of four feet shall separate all sidewalks from the adjacent street, except within ten feet of a street intersection. (see figure 3-1)

Figure 3-1: Sidewalk Dimensions



5. *Sidewalk Encroachments/Obstructions.* Encroachments including, but not limited to utility poles, fire hydrants, parking meters, mailboxes, sign standards, and street furniture shall not be located within the concrete portion of the sidewalk area, unless determined to be compliant by the Public Works Department. However, tree grates, utility grates, and manholes may be permitted within a sidewalk provided five feet of unobstructed clearance is provided on one side, unless less clearance is determined to be compliant by the Public Works Department. (see figure 3-2)

- ### 3-9 Requirements for Streets

- ## Chapter 3. Requirements for Improvements, Reservations, and Design

- b. *Grades and Cross-slopes.* Maximum grades shall be approved by the Public Works Department.
- c. *Vertical Design.* Vertical design shall be in accordance with the current edition of the AASHTO Manual. The vertical design speed of a street shall be equal to or greater than the horizontal design speed of that street. The maximum grades shall not exceed those included in the Public Works Department's Standard Specification and Details. The developer shall show on the plans the "K" value and the design speed of each vertical curve, and the design speed of each horizontal curve.
- d. *Steeper Grades Permitted.* Steeper grades than those specified in Section 3-9.2.c may be permitted for a Minor Local Street and for a Residential Local Street when such is necessary to lessen environmental impacts resulting from designs to meet lesser grades, provided all other design criteria are satisfied. Minimum grades on all roads shall be one percent.
- e. *Right-of-Way and Pavement Width.* Minimum right-of-way width and pavement width shall be a minimum of 46 feet or otherwise approved by the Planning Commission.
 - 1. Whenever possible, four moving lanes should be avoided in residential areas except for required arterial or collector streets. Four lanes may be warranted for short distances at entrances to larger developments.
 - 2. One-way streets may be permitted and, in some cases, may be desirable for loop streets or where there is a need to separate the directional lanes to preserve natural features or to avoid excessive grading for street construction on slopes.
- f. *Non-Curb Street Design Permitted.* When it is found to be in the public's interest, a non-curb street design cross section in accordance with Public Works Department's Subdivision Construction Specification may be permitted in low-density residential zoning.
- g. *Horizontal Radius of Curved Streets.* The minimum centerline radius of curved segments shall be in accordance with the AASHTO Manual, current edition. In cases where design speeds are less than 30 mph, the tangents connecting the curves shall not exceed the length of the centerline radius. Generally, subdivision streets shall not be superelevated.
- h. *Tangents between Reverse Curves.* The minimum length of tangents between reverse curves for non-superelevated streets shall be in accordance with the Public Works Department's Standard Specification and Details.
- i. *Turnarounds.* The type of turnaround required shall be determined by the Planning Commission as advised by the Public Works Department.
 - 1. Turnarounds shall be designed to accommodate emergency and service vehicles as well as passenger cars. Exceptions to the turnaround requirements may be made for short streets, up to 150 feet long, where emergency and service vehicles are able to back out with relative ease.
 - 2. The maximum lengths of streets with turnarounds shall be 750 feet.
 - 3. All circular turnarounds of 50 feet or greater radius on permanent dead-end streets shall be hollow-core turnarounds.
 - 4. The design of turnarounds shall be approved by the Public Works Department.
- j. *Intersection Design Standards for Minor Local, Local, and Collector Streets.*
 - 1. Intersecting streets shall meet at a 90-degree angle wherever possible. Where natural or manmade obstacles prevent a standard intersection, intersecting streets may have a centerline angle of not less than 75 degrees.

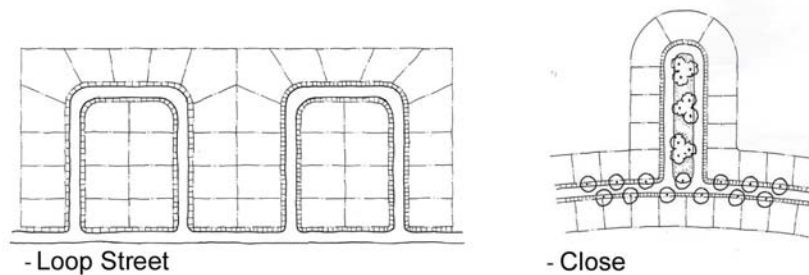
2. The centerline-to-centerline distance between offset T-type intersections shall be at least 200 feet along local streets and 300 feet when such T-type intersections occur along a collector street.
 3. The minimum radius of corner lines (returns) connecting lines of intersecting streets shall be approved by the Public Works Department.
 4. Where a street approach to an intersection is curved, there shall be a 100-foot minimum curve tangent as measured from the ultimate edge of pavement. For the purposes of this requirement, the ultimate edge of pavement is that point to which the pavement will extend when the street is built to its full dimension conforming to the standards for its assigned classification on the Major Street Plan and Collector Plan.
 5. At street intersections, a vertical slope not greater than three percent for 50 feet or greater shall be provided on all stopped streets except on minor local streets an approach slope of 35 feet or greater at a maximum four percent grade may be permitted as measured from the ultimate edge of pavement as defined by the Major Street Plan or Collector Plan.
 - k. *Number of Intersecting Streets.* Not more than two streets shall intersect in any one location unless otherwise specifically approved by the Planning Commission.
3. *Additional Regulations for Private Streets.* Private streets may be included in any subdivision in conformity to these standards so long as the subdivision is included within a PUD, a UDO, a SP, or is within eligible areas of the Natural Conservation or Rural land use policy (as defined in Section 7-2).
 - a. The private street (or road) shall be identified on the face of the plat as an easement for lot access and as a public utility easement.
 - b. Within PUDs, UDOs, and SPs, private streets shall conform to the Public Works Department's Standard Specification and Designs:
 1. All hardware such as catch basins, inlets, etc., and all drainage structures shall meet the requirements of Volume 1 of the Stormwater Management Manual.
 2. Up to eight side-by-side parking spaces may be allowed to back directly into the travelway of a loop or permanent dead-end street provided that:
 - a. Such parking is located a minimum of 25 feet from any other parking spaces backing into the travelway.
 - b. The sight distance along the travelway is adequate for the design speed of the street.
 - c. All other parking shall be provided with adequate off-street maneuvering to allow forward entry to the street.
 3. All vehicular access to the private street shall be shown on the development plan and final subdivision plat.
 4. A bond may be posted in lieu of completion of the required improvements in accordance with the provisions of Chapter 6.
 5. The Master Deed, or declaration of covenants for the PUD, shall comply with Section 17.40.120.E of the Zoning Code. The Master Deed, or declaration of covenants, shall contain, in its description of the common element(s), a specific designation of the private street as the responsibility of the Owner's Association and not of Metro. The Master Deed, or declaration of covenants, shall also provide for a sufficient level of funding to offset the reasonable and foreseeable costs of maintaining the private street.
 6. The Master Deed(s), or declaration of covenants for a UDO or SP shall contain, in its description of the common element(s), a specific designation of

the private street as the responsibility of an Owner's Association and not of Metro. The Master Deed(s), or declaration of covenants, shall also provide for a sufficient level of funding to offset the reasonable and foreseeable costs of maintaining the private street(s) in the UDO or SP.

- c. Private streets in subdivisions within eligible areas of the Natural Conservation and Rural land use policy areas (as defined in Section 7-2) shall conform to the following:
 - 1. No more than ten lots may be served by a private street or network of private streets.
 - 2. All drainage improvements required under the Stormwater Management Ordinance shall be completed and certified to be in compliance with the approved drainage plan before the Planning Commission will approve the final plat of the proposed subdivision. The Planning Commission may permit a performance bond to be posted in lieu of completion for final plat approval.
 - 3. When an existing parcel is being subdivided to create two lots, the permanent easement for access to and egress from the new building site shall have a minimum width of 12 feet.
 - 4. All private streets serving two to ten lots shall have an all-weather surface not less than the width specified by the Public Works Department.
 - 5. If a public water supply is available, the Planning Commission may require fire hydrants to be placed to serve the development as prescribed by Metro ordinances or applicable utility district requirements.
 - 6. The Planning Commission shall require proof that a joint maintenance agreement mutually enforceable and running with the land has been entered into and recorded for the lots served by the private street, prior to final approval of the final plat. The joint maintenance agreement shall provide that each owner is jointly and severally liable for the maintenance of the private street and that each owner can enforce contributions to offset the cost of that maintenance, based proportionately on the units served by the private street. The joint maintenance agreement shall also provide that if any owner must pursue legal action to enforce its provisions, he shall be allowed to recover reasonable attorney's fees and associated costs.
 - d. Private drives shall be approved by the Planning Commission.
4. *Street Construction and Related Requirements:*
- a. *Grading and Improvement Plan.* Street plans shall conform to the standards required by this Section and shall be approved as to design and specification by Public Works Department.
 - b. *Improvements in Floodable Areas.* The finished elevation of proposed streets shall be a minimum of one foot above the 100-year flood elevation. Location of such streets shall conform to the requirements of the Stormwater Management Regulations as administered by the Stormwater Division.
 - c. *Reserve Strips.* The creation of reserve strips adjacent to a proposed street in such a manner as to deny access from adjacent property to such street shall not be permitted.
 - d. *Arrangement of Streets:*
 - 1. All streets shall be properly integrated with the existing and proposed system of streets and dedicated rights-of-way as established in the General Plan, including its constituent elements, and the Major Street Plan and the Collector Street Plan.

2. All streets shall be properly related to special traffic generators, such as industries, business districts, schools, churches, and shopping centers; to population densities; and to the pattern of existing and proposed land uses.
3. Minor local streets shall be laid out to conform as much as possible to the topography, to provide for the efficient dispersal of internal traffic while discouraging high volumes of through traffic, and to permit efficient drainage and accommodate utility systems.
4. The use of an interconnected street system shall be used to broadly disperse internal traffic and provide maximum alternatives for access to property for both public and private movement.
5. The use of curvilinear streets shall be encouraged where conformance with existing topography shall minimize the volume of cut and fill.
6. Street designs such as loop streets or closes shown in Figure 3-3, are preferred to the use of a cul-de-sac design. Cul-de-sacs shall be permitted where topographic features or configuration of property boundaries prevent street connections. These alternatives shall support the turning movements of emergency and service vehicles.

Figure 3-3: Alternatives to Cul-de-sacs.



7. Proposed streets shall be extended to the boundary lines of the tract to be sub-divided, unless prevented by topography or other physical conditions or unless, in the opinion of the Planning Commission, such extension is not necessary or desirable for the coordination of the layout of the subdivision with the layout, either in existence or proposed, of adjacent tracts. Where streets are extended to property lines, temporary turnarounds shall be installed, unless the street segment is less than 150 feet in length. In all cases, drainage and utility easements shall be extended to property boundaries.
 8. In business and industrial developments, the streets and other access routes shall be planned in connection with the grouping of buildings, location of rail facilities, and the provision of alleys, truck loading, and maneuvering areas, and location of walks and parking areas to minimize conflict of movement between the various types of traffic, including pedestrian traffic.
- e. *Dead-end Streets.*
1. *Dead-end Streets (Temporary).* The arrangement of streets shall provide for the continuation of streets between adjacent properties for convenient movement of traffic, effective fire protection, and/or efficient provision of utilities. If the adjacent property is undeveloped and the street must be a dead-end street temporarily, the right-of-way shall be extended to the

property line. A temporary turnaround, approved by the Public Works Department, shall be provided on all temporary dead-end streets exceeding 150 feet in length, with a notation on the subdivision plat that land outside the normal street right-of-way shall revert to abutting property owners whenever the street is continued. The reconstruction of the temporary turnaround into the normal right-of-way shall be the responsibility of the attaching developer (see Section 3-9.4.d.7). Temporary turn-arounds shall have a minimum slope of one percent as measured from the center. Additionally, a sign shall be placed, in accordance with the requirements of Section 3-12.1, at the terminus of the temporary cul-de-sac that reads as follows: "Temporary Dead-End Street, Street to be extended by the authority of the Metro Government of Nashville and Davidson County."

2. *Dead-end Streets (Permanent).* Where a road does not extend beyond the boundary of the subdivision and continuation is not required by the Planning Commission for access to adjoining property, the terminus shall normally not be nearer to such boundary than 20 feet. However, the Planning Commission may require the dedication of an easement extending to the property line to accommodate drainage facilities, pedestrian traffic, or utilities. A turn-around shall be provided at the end of a permanent dead-end street also referred to as a cul-de-sac, in accordance with these regulations. For greater convenience to traffic and more effective police and fire protection, permanent dead-end streets shall be limited in length in accordance with these regulations.
- f. *Alleys.* Alleys may be required where appropriate in all commercial and industrial districts. Alleys are appropriate in residential districts to improve lot access, reduce the number and frequency of driveways entering public or private streets, or reduce the need for topographic disturbance.
- g. *Construction Standards.* The construction plans of all streets shall be approved by the Public Works Department.
- h. *Railroads and Intersection Proximity.* The intersection of streets shall, to the extent practical, be at least 175 feet from the point where either street crosses a railroad track. The measurement shall be made from the midpoint of the intersection to the midpoint of the street's intersection with the nearest track.

3-10 Requirements for Dedication, Reservations, or Improvements

1. *Application.* Where a proposed subdivision adjoins or encompasses either a Greenway Corridor shown on the Countywide Greenways Plan or Countywide Parks Master Plan, a substandard street, or a route depicted upon the Major Street Plan or Collector Plan to be opened, widened, or realigned, or generates a need for increased recreational opportunities, then requirements of Section 3-10 shall apply.
2. *Undeveloped Property.*
 - a. *Substandard Streets.* Substandard streets encompassed by or adjacent to the proposed subdivision shall be improved by the developer. Construction plans shall be approved by the Public Works Department for that street portion located within the boundaries of the subdivision or the abutting street.
 - b. *Infill Development on Non-Standard Street(s).* Infill development, located on streets within the urban zoning overlay district that are predominantly developed, provide access to primarily residential uses, and are established with a non-standard right-of-way and/or pavement width, generally shall not be required to

provide right-of-way or pavement width in excess of the existing street dimensions.

- c. *Planned Routing.* When applicable, the layout of a street(s) within a subdivision shall conform to the routing depicted upon the Major Street Plan or Collector Plan. The amount of right-of-way for the type of street required shall be dedicated up to a maximum of 60 feet in width. Where any street so depicted requires a right-of-way greater than 60 feet then the developer shall show on the face of the plat an additional area "reserved for future right-of-way" and any required yard area shall be measured from the reservation line.
3. *Developed Property.* When property containing existing structures is being divided simply to place each structure on a separate lot and the future right-of-way will fall within the existing structure footprint, then the applicant shall be required to note on the face of the plat any additional area necessary for compliance with the Major Street Plan "reserved for future right-of-way." The plat shall also contain a note stating, "When any existing structure is demolished, the setback requirements for any new structure shall be measured from the reservation line."
4. *Required Improvements or Dedications.* In addition to the above requirements, a traffic impact study may be required in accordance with the Traffic Impact Study Guidelines. Any required on- or off-site street improvements shall be made by the developer upon property that the developer controls and/or upon public property.
5. *Relationship to Scenic Routes.* A subdivision fronting or encompassing a street designated on the Major Street Plan as a scenic arterial shall be platted in accordance the requirements of Section 17.24.070 of the Zoning Code and with the following:
 - a. Right-of-way shall be platted as noted in Section 3-10.2.c except the lot area located within 75 feet of the centerline of the existing right-of-way shall be designated on the face of the plat as a "Scenic Easement."
 - b. A building setback line shall be located on the face of the plat. The line shall be established by measuring the applicable zone district required yard from the scenic landscape easement line.
 - c. A note shall be placed on the face of the plat that states, "except as authorized by approved construction plans, no grading, cutting of trees, or disturbance of natural features shall be performed within this easement except driveway crossings which shall be located to provide minimal disturbance." The note shall be referenced by arrow or number to the scenic easement location.
6. *Conservation Easements for Greenways.* Publicly accessible Greenway conservation easements shall be required in subdivisions along blue line streams identified in Community Plans and/or contiguous to greenways as indicated in the General Plan, including the Metropolitan Parks and Greenways Master Plan.
 - a. The location and size of the easement shall be recommended by the Metropolitan Greenways Commission.
 1. In areas where the primary function of the greenway is as an urban or neighborhood transportation connector and the waterway is not a regulated floodway, the greenway conservation easement shall include the streambed plus a corridor at least 25 feet in width, measured from top of bank, outward.
 2. In areas where the greenway is intended to protect the natural environment of and public access to the major waterways in Davidson County, and serve the

3. In cases, such as those where the entire site has steep slopes, and the Planning Commission determines that this proves a hardship to the property owner, alternative routes may be considered.

7. *Park Dedications.* If the proposed subdivision generates a need for additional recreational opportunities, the applicant may be required to offer a dedication of land for park purposes.

1. *Inspections During Construction.* All infrastructure construction is to be completed as described in the approved construction plans, construction specifications, and construction inspection requirements of the applicable departments and agencies. It shall be the applicant's responsibility to contact the departments and agencies for requirements.

- ### 3-12 Street Name, Regulatory and Warning Signs for Public Streets

- ## Chapter 3. Requirements for Improvements, Reservations, and Design

in lieu of permanent signs until curbs are installed and backfilled. Such signs shall meet the same standards for mounting height, size, and legibility as permanent signs but may be mounted on temporary structures. The installation of temporary street name signs, including the signs required by Section 3-9.4.e.1 for temporary dead-end streets and Section 3-10.6.b for greenway easement signs, in accordance with these standards shall be verified by written developer/contractor certification to the Public Works Department before authorization for building permits may be granted.

2. *Street Name Signs*

- a. *Installation Requirements.* The developer shall purchase and install appropriate signs. Written confirmation of this placement shall be required from the Public Works Department prior to the recording of a final plat.
- b. *Bond.* The developer may post a performance bond in lieu of the improvements prior to the recording of the final plat. Street sign bonds may be a part of the original bond covering streets, drainage, water, sewer, etc.
- c. *Notes.* All subdivision plats that require street name signs, temporary dead-end street signs as described in Section 3-9.4.e.1, and/or greenway easement signs as described in Section 3-10.6.b shall require a note stating: "No building permit may be issued on any lot until street name signs, temporary dead-end street signs, or greenway easement signs are installed and verified by the Public Works Department on all streets on which the lot depends for access."
- d. *Planned Unit Developments.* Within Planned Unit Developments that require street name signs, but do not require the recording of a final plat, the signing requirements shall be specified in the conditions of approval.

3. *Regulatory and Warning Signs*

- a. *Installation Requirements.* The developer shall purchase and install appropriate signs. Written confirmation of this placement shall be required from the Public Works Department prior to the recording of a final plat.
- b. *Bond.* The developer may post a performance bond in lieu of the improvements prior to the recording of the final plat. Street sign bonds may be a part of the original bond covering streets, drainage, water, sewer, etc.
- c. *Notes.* No special note shall be required on the subdivision plat.

3-13 Street Names, Regulatory and Warning Signs for Private Streets

1. *Installation Requirements.* The developer shall purchase and install signs as approved by the Public Works Department. Written confirmation of this placement shall be required by developer or contractor certification prior to the recording of a final plat.
2. *Notes.* All subdivision plats that require street name signs, temporary dead-end street signs as described in Section 3-9.4.e.1, and/or greenway easement signs as described in Section 3-10.6.b shall require a note stating: "No building permit may be issued on any lot until street name signs, temporary dead-end street signs, or greenway easement signs are installed and verified by developer/contractor certification on all streets on which the lot depends for access."
3. *Planned Unit Development.* In the case of developments that require the recording of a final plat, the requirements shall be specified in the conditions of Planned Unit Development approval.

3-14 Drainage and Storm Sewers

1. *General Requirements.* The storm water system within a subdivision shall be designed in accordance with the requirements of the Metropolitan Stormwater Management Regulations. All ditch channelization, culvert, storm drain, or catch basin construction shall be governed by Volume 1 of the Stormwater Management Manual. The Stormwater Management Manual is adopted herewith by reference and made a part of these regulations.
2. *Storm Water Facilities.* Drainage facilities shall be located in the road right-of-way, where feasible, or in perpetual unobstructed easements.
 - a. *Culvert or Bridges.* Cross-drain culverts of 36-inch diameter or less shall be extended 100 feet minimum on either side of a street. Headwall style shall be as directed by the Stormwater Division.
 1. Concrete headwalls shall be constructed at both ends of cross drains or driveway culverts and approved by the Stormwater Division. Masonry headwalls shall not be permitted; however, masonry veneer may be applied to headwalls on driveway culverts.
 2. Bridges and box culverts shall be constructed to the same width as the roadway where such is to be placed plus five feet on either side of the roadway upon which sidewalks shall be placed.
 - b. *Accommodation of Upstream Drainage Areas.* A culvert or other drainage facility shall in each case be large enough to accommodate potential run-off from its entire upstream drainage area, whether inside or outside the subdivision. The subdivision engineer shall determine the necessary size of the facility. The developer shall be responsible for upsizing cross-drains under existing streets due to relocation of existing drainage channels or increased run-off resulting from the subdivision.
 - c. *Effect on Downstream Drainage Areas.* The effect of each subdivision on existing downstream drainage facilities outside the area of the subdivision shall be determined. Where it is anticipated that the additional run-off incident to the development of the subdivision will overload existing downstream drainage facilities provisions should be made for improvement of such drainage facilities or inclusion of detention or retention facilities within the proposed development as determined by the Stormwater Division. Generally, the developer's responsibility for downstream improvements shall not extend beyond the second downstream structure.
3. *Dedication of Drainage Easements*
 - a. *General Requirements.* Where a subdivision is traversed by a drainageway, channel, or stream either natural or manmade, there shall be provided a storm water easement or drainage right-of-way conforming substantially to the lines of such watercourse and of such width and construction as shall be adequate for the purpose. Consideration shall also be given to incorporation of sewer easements parallel to or overlaying drainage easements as both generally follow the same course.
 - b. *Drainage Easements.*
 1. Where topography or other conditions are such as to make impractical the inclusion of drainage facilities within a road right-of-way, perpetual unobstructed easements at least 20 feet in width for such facilities shall be provided across property outside the road right-of-way but within satisfactory access from a road. Easements shall be indicated on the concept plan, the

- development plan, and the final subdivision plat. Drainage easements shall be carried from roads to natural watercourses or to other drainage facilities.
2. When a new drainage system is to be constructed which will transport water across adjacent private land outside the subdivision, appropriate drainage easement(s) shall be secured and indicated on the plat by notes referencing the easement recording.
 3. The applicant shall dedicate, when required by the Planning Commission either in fee or by drainage or conservation easement, the land on both sides of existing watercourses to a distance to be determined by the Stormwater Division, but not less than ten feet each side.

3-15 Public Water Facilities

1. *Installation of Water Facilities.* Where a public water main is within reasonable access of the subdivision, the applicant shall install water facilities, including fire hydrants, subject to the construction and materials specifications of the Metropolitan Department of Water Services, or applicable Utility District. The location of fire hydrants shall be as specified in applicable Metro ordinances and other Metro Code. Fire flow requirements shall be as specified by the Fire Marshal. The applicant shall determine the availability of sufficient fire fighting water prior to submittal of the development plan. Plans shall be approved by Metropolitan Department of Water Services, the Utility District, or Fire Marshal where applicable.
2. *Compliance.* All water systems shall comply with the general instructions and detailed specifications for construction of water projects of the Metropolitan Department of Water Services, or applicable utility district, which are herewith adopted by reference. All water systems constructed within Metro shall comply with all applicable regulations of the State of Tennessee.

3-16 Sewerage Facilities

1. *General Requirements.* The applicant shall design and install sanitary sewer facilities in accordance with the rules, regulations, detail specifications, and standards, where applicable, of the Metropolitan Health Department, the State Department of Health and Environment and the Metropolitan Department of Water Services or applicable utility district. Plans shall be approved by the above agencies where applicable.
2. *Mandatory Connection to Public Sewer System or Provision for Future Connection.* Where land lies within Metro, and such land is not within eligible areas of the Natural Conservation or Rural land use policy (as defined in Section 7-2), no subdivision of land shall be made unless each and every lot is provided with a connection to a public sanitary sewer system. Residential acreage tract developments consisting of lots having an area of one acre or more, exclusive of public ways, may be permitted without the provision of public sanitary sewers, if such is not reasonably accessible, provided such development occurs only along existing public streets with no provision of additional streets providing frontage or access to any lot being developed, and further provided that an alternate method of sewage disposal is approved by the Metropolitan Health Department. Commercial and industrial development sites along existing publicly maintained streets, with no provision of additional streets providing frontage or access of any site being developed may be permitted without the provision of public sanitary sewers, if not reasonably accessible, provided that the plan of subdivision indicates the proposed use of the

sites being developed and that an alternate method of sewage disposal for such use is approved by the Metropolitan Health Department.

3. *Specifications.* The construction specifications of the State of Tennessee, Metropolitan Department of Water Services, and the Utility Districts serving various portions of Davidson County for sewer system construction are herewith adopted by reference.

3-17 Underground Utilities

1. *Underground Utilities.* Utilities in residential subdivisions shall be located underground whenever a new public or private street is included on the plat, or where an existing public or private street, is to be extended, as provided in Section 17.28.103 of the Zoning Code. Where a subdivision proposes public or private alleys, utilities may be above or below ground within the alley. An applicant may request an exemption pursuant to Section 17.28.103.E of the Zoning Code from the underground utility requirement for all or a portion of a residential subdivision. If such a request is denied by the planning commission, the applicant has the right to appeal such denial to the Board of Zoning Appeals, as set forth in the Zoning Code.

3-18 Referral to Public Body

1. *Referral to Public Body.* The Planning Commission shall refer any plat proposing public facilities such as school sites, playgrounds, etc., to the public body concerned with acquisition or maintenance of such facilities for its consideration and report and shall allow the public body or agency 21 days for reply. The Planning Commission may propose alternate areas for such facilities.